

NRPI radon chamber



NRPI thoron/radon chamber



I. Radon chamber

Details of calibration facility:

Typical radon concentration:	(100 – 8000) Bq/m ³
Volume:	45 m ³ , type: dynamic -Walk in, walls similar to dwellings
Continuously monitored and controlled parameters:	radon gas, EEC, equilibrium factor, f_p , temperature, relative humidity, air exchange rate, aerosol concentration and size distribution (5 - 1100) nm GRIMM (SMPS + C)
Available for monitoring:	solid (carnauba wax) polydisperse aerosols or liquid monodisperse (NaCl) aerosols.
Uncertainties (95% CI):	radon gas < 10 %, EEC < 20 %.

Typical adjustable and stable parameters in NRPI atmosphere:

Quantity	Typical used values
temperature	(8 – 45) °C
rel. humidity	(20 - 95) %
mean solid aerosol aerodynamic diameters	(100 – 200) nm
monodisperse liquid aerosol aerodynamic diameters	(0,5 - 3) μm
Air exchange rate	(0,1- 2) h ⁻¹
Equilibrium factor F	(1 – 90) %
f_p	(1- 60) %

II. Thoron/radon chamber

Details of calibration facility:

Thoron concentration:	100 – 100 000 Bq/m ³
Radon concentration:	0,1 Bq/m ³ – 10 MBq/m ³
Ratio (K) of radon/thoron:	arbitrary ratios in wide range: $K < 1$ or $K > 1$
Volume:	150 dm ³ , stainless steel vessel
Continuously monitored and stable parameters:	radon gas, thoron gas, relative humidity, room temperature
Uncertainties (95 CI):	radon gas < 10 % , thoron gas < 15%.

Typical adjustable and stable parameters in NRPI atmosphere

Quantity	Typical used values
Temperature	(room temperature)
Rel. humidity	(5 – 60) %
f_p	> 50%

All of the NRPI reference instruments are independently compared with a primary instruments of the renowned Labs. as the PTB Braunschweig (Germany), BfS Berlin (Germany) and Czech Authorized Metrological Centre Kamenna.

Description of the QA Programme for radon gas and short lived radon progenies can be found here - doi:10.1093/rpd/ncn113 in the Radiation Protection Dosimetry, Vol. 130, No. 1, pp. 43-47, 2008.

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